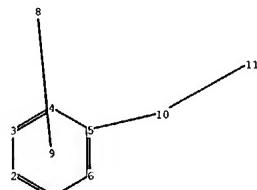
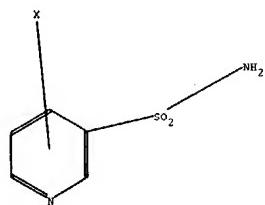


```

chain nodes :
 13 14 15 16
ring nodes :
 1 2 3 4 5 6 7 8 9 10 11 12
chain bonds :
 4-16 6-13 10-13 11-14 14-15
ring bonds :
 1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12
exact/norm bonds :
 4-16 6-13 10-13 14-15
exact bonds :
 11-14
normalized bonds :
 1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12
isolated ring systems :
 containing 1 : 7 :

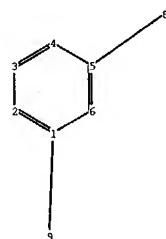
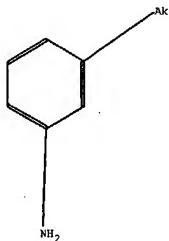
batch level :
 1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom
 12:Atom 13:CLASS 14:CLASS 15:CLASS 16:CLASS

```



chain nodes :
8 10 11
ring nodes :
1 2 3 4 5 6
chain bonds :
5-10 10-11
ring bonds :
1-2 1-6 2-3 3-4 4-5 5-6
exact/norm bonds :
10-11
exact bonds :
5-10
normalized bonds :
1-2 1-6 2-3 3-4 4-5 5-6
isolated ring systems :
containing 1 :

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 8:CLASS 9:CLASS 10:CLASS 11:CLASS



chain nodes :

8 9

ring nodes :

1 2 3 4 5 6

chain bonds :

1-9 5-8

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6

exact/norm bonds :

1-9 5-8

normalized bonds :

1-2 1-6 2-3 3-4 4-5 5-6

isolated ring systems :

containing 1 :

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 8:CLASS 9:CLASS

* * * * * * * * * * * * * * * Welcome to STN International * * * * * * * * * * * * * * *

| | | |
|-------------|-----------|--|
| <u>NEWS</u> | <u>1</u> | Web Page URLs for STN Seminar Schedule - N. America |
| <u>NEWS</u> | <u>2</u> | "Ask CAS" for self-help around the clock |
| <u>NEWS</u> | <u>3</u> | May 12 EXTEND option available in structure searching |
| <u>NEWS</u> | <u>4</u> | May 12 Polymer links for the POLYLINK command completed in REGISTRY |
| <u>NEWS</u> | <u>5</u> | May 27 New UPM (Update Code Maximum) field for more efficient patent SDIs in CAplus |
| <u>NEWS</u> | <u>6</u> | May 27 CAplus super roles and document types searchable in REGISTRY |
| <u>NEWS</u> | <u>7</u> | Jun 28 Additional enzyme-catalyzed reactions added to CASREACT |
| <u>NEWS</u> | <u>8</u> | Jun 28 ANTE, AQUALINE, BIOENG, CIVILENG, ENVIROENG, MECHENG, and WATER from CSA now available on STN(R) |
| <u>NEWS</u> | <u>9</u> | Jul 12 BEILSTEIN enhanced with new display and select options, resulting in a closer connection to BABS |
| <u>NEWS</u> | <u>10</u> | Jul 30 BEILSTEIN on STN workshop to be held August 24 in conjunction with the 228th ACS National Meeting |
| <u>NEWS</u> | <u>11</u> | AUG 02 IFIPAT/IFIUDB/IFICDB reloaded with new search and display fields |
| <u>NEWS</u> | <u>12</u> | AUG 02 CAplus and CA patent records enhanced with European and Japan Patent Office Classifications |
| <u>NEWS</u> | <u>13</u> | AUG 02 STN User Update to be held August 22 in conjunction with the 228th ACS National Meeting |
| <u>NEWS</u> | <u>14</u> | AUG 02 The Analysis Edition of STN Express with Discover! (Version 7.01 for Windows) now available |
| <u>NEWS</u> | <u>15</u> | AUG 04 Pricing for the Save Answers for SciFinder Wizard within STN Express with Discover! will change September 1, 2004 |
| <u>NEWS</u> | <u>16</u> | AUG 27 BIOCOMMERCE: Changes and enhancements to content coverage |
| <u>NEWS</u> | <u>17</u> | AUG 27 BIOTECHABS/BIOTECHDS: Two new display fields added for legal status data from INPADOC |
| <u>NEWS</u> | <u>18</u> | SEP 01 INPADOC: New family current-awareness alert (SDI) available |
| <u>NEWS</u> | <u>19</u> | SEP 01 New pricing for the Save Answers for SciFinder Wizard within STN Express with Discover! |
| <u>NEWS</u> | <u>20</u> | SEP 01 New display format, HITSTR; available in WPIDS/WPINDEX/WPIX |

| | |
|---------------------|---|
| <u>NEWS EXPRESS</u> | JULY 30 CURRENT WINDOWS VERSION IS V7.01, CURRENT MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP), AND CURRENT DISCOVER FILE IS DATED 11 AUGUST 2004 |
| <u>NEWS HOURS</u> | STN Operating Hours Plus Help Desk Availability |
| <u>NEWS INTER</u> | General Internet Information |
| <u>NEWS LOGIN</u> | Welcome Banner and News Items |
| <u>NEWS PHONE</u> | Direct Dial and Telecommunication Network Access |
| <u>NEWS WWW</u> | CAS World Wide Web Site (general information) |

Enter NEWS followed by the item number or name to see news on that specific topic.

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FILE 'HOME' ENTERED AT 09:38:44 ON 07 SEP 2004

h eb c g cg b cg

eb

FILE 'REGISTRY' ENTERED AT 09:38:49 ON 07 SEP 2004
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STRUCTURE FILE UPDATES: 6 SEP 2004 HIGHEST RN 740796-45-6
 DICTIONARY FILE UPDATES: 6 SEP 2004 HIGHEST RN 740796-45-6

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

Please note that search-term pricing does apply when
 conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more
 information enter HELP PROP at an arrow prompt in the file or refer
 to the file summary sheet on the web at:

<http://www.cas.org/ONLINE/DBSS/registryss.html>

| | | | |
|----------------------|------------|---------|--|
| => file casreact | | | |
| COST IN U.S. DOLLARS | SINCE FILE | TOTAL | |
| | ENTRY | SESSION | |
| FULL ESTIMATED COST | 2.94 | 3.15 | |

FILE 'CASREACT' ENTERED AT 09:43:04 ON 07 SEP 2004
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 26, 1996), unless otherwise indicated in the original publications.

FILE CONTENT:1840 - 5 Sep 2004 VOL 141 ISS 10

```
*****
*          *
*      CASREACT now has more than 8 million reactions      *
*          *
*****
```

Some CASREACT records are derived from the ZIC/VINITI database (1974-1991)
 provided by InfoChem, INPI data prior to 1986, and Biotransformations
 database compiled under the direction of Professor Dr. Klaus Kieslich.

This file contains CAS Registry Numbers for easy and accurate substance
 identification.

=>
 L1 STRUCTURE uploaded

=> d l1
 L1 HAS NO ANSWERS
 L1 STR

=> s 11

SAMPLE SEARCH INITIATED 09:43:40 FILE 'CASREACT'
SCREENING COMPLETE - 198 REACTIONS TO VERIFY FROM 2 DOCUMENTS

100.0% DONE 198 VERIFIED 0 HIT RXNS 0 DOCS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**

PROJECTED VERIFICATIONS: 3116 TO 4804

PROJECTED ANSWERS: 0 TO 0

L2 0 SEA SSS SAM L1 (0 REACTIONS)

=> s 11 fall

THE ESTIMATED SEARCH COST FOR FILE 'CASREACT' IS 102.30 U.S. DOLLARS

DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N or END:y

FULL SEARCH INITIATED 09:43:47 FILE 'CASREACT'

SCREENING COMPLETE - 308 REACTIONS TO VERIFY FROM 12 DOCUMENTS

100.0% DONE 308 VERIFIED 0 HIT RXNS 0 DOCS
SEARCH TIME: 00.00.01

L3 0 SEA SSS FUL L1 (0 REACTIONS)

=>

L4 STRUCTURE UPLOADED

=> file reg

| | | |
|----------------------|------------------|---------------|
| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
| FULL ESTIMATED COST | 104.40 | 107.55 |

FILE 'REGISTRY' ENTERED AT 09:46:10 ON 07 SEP 2004

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DICTIONARY FILE UPDATES: 6 SEP 2004 HIGHEST RN 740796-45-6

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more
information enter HELP PROP at an arrow prompt in the file or refer
to the file summary sheet on the web at:
<http://www.cas.org/ONLINE/DBSS/registryss.html>

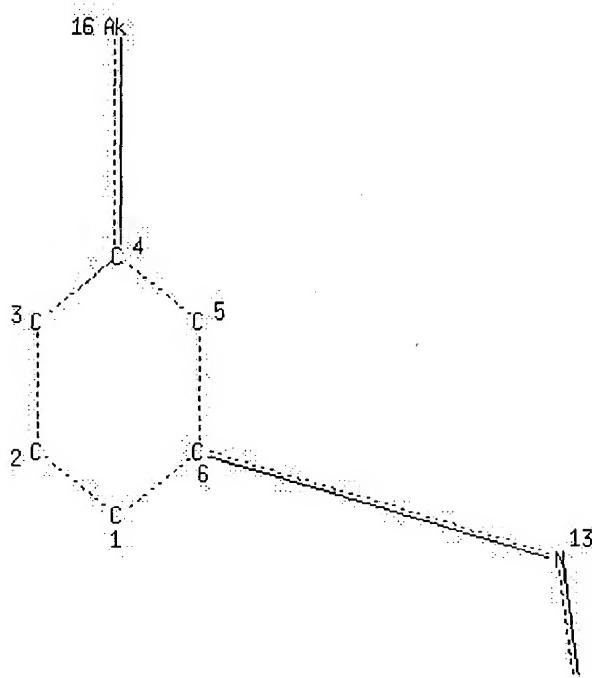
=>

L5 STRUCTURE UPLOADED

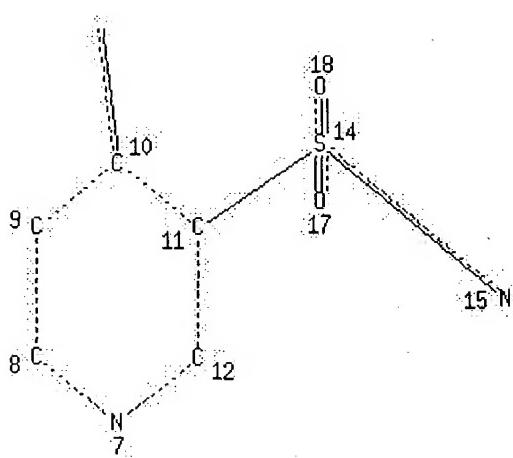
=> d 15

L5 HAS NO ANSWERS

L5 STR



Page 1-A



Page 2-A

M2

Page 2-B

NODE ATTRIBUTES:

| | | | | |
|--------|----|----|----|----|
| HCOUNT | IS | M2 | AT | 15 |
| NSPEC | IS | R | AT | 1 |
| NSPEC | IS | R | AT | 2 |
| NSPEC | IS | R | AT | 3 |
| NSPEC | IS | R | AT | 4 |
| NSPEC | IS | R | AT | 5 |
| NSPEC | IS | R | AT | 6 |
| NSPEC | IS | R | AT | 7 |
| NSPEC | IS | R | AT | 8 |
| NSPEC | IS | R | AT | 9 |
| NSPEC | IS | R | AT | 10 |
| NSPEC | IS | R | AT | 11 |
| NSPEC | IS | R | AT | 12 |
| NSPEC | IS | C | AT | 13 |

h eb c g cg b cg

eb

NSPEC IS C AT 14
 NSPEC IS C AT 15
 NSPEC IS C AT 16
 NSPEC IS C AT 17
 NSPEC IS C AT 18
 DEFAULT MLEVEL IS ATOM
 MLEVEL IS CLASS AT 13 14 15 16 17 18
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RSPEC I
 NUMBER OF NODES IS 18

STEREO ATTRIBUTES: NONE

=> s 15
 SAMPLE SEARCH INITIATED 09:46:23 FILE 'REGISTRY'
 SAMPLE SCREEN SEARCH COMPLETED - 28 TO ITERATE

100.0% PROCESSED 28 ITERATIONS 0 ANSWERS
 SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
 BATCH **COMPLETE**
 PROJECTED ITERATIONS: 243 TO 877
 PROJECTED ANSWERS: 0 TO 0

L6 0 SEA SSS SAM L5

=> s 15 full
 THE ESTIMATED SEARCH COST FOR FILE 'REGISTRY' IS 155.00 U.S. DOLLARS
 DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N or END:y
 FULL SEARCH INITIATED 09:46:27 FILE 'REGISTRY'
 FULL SCREEN SEARCH COMPLETED - 538 TO ITERATE

100.0% PROCESSED 538 ITERATIONS 8 ANSWERS
 SEARCH TIME: 00.00.01

L7 8 SEA SSS FUL L5

=> file hcplus
 COST IN U.S. DOLLARS SINCE FILE TOTAL
 ENTRY SESSION
 FULL ESTIMATED COST 155.42 262.97

FILE 'HCPLUS' ENTERED AT 09:46:31 ON 07 SEP 2004
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FILE COVERS 1907 - 7 Sep 2004 VOL 141 ISS 11
 FILE LAST UPDATED: 6 Sep 2004 (20040906/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

```
=> s l7/prep
      23 L7
      3192603 PREP/RL
L8      12 L7/PREP
          (L7 (L) PREP/RL)
```

| | | | |
|----------------------|--|------------|---------|
| => file reg | | SINCE FILE | TOTAL |
| COST IN U.S. DOLLARS | | ENTRY | SESSION |
| FULL ESTIMATED COST | | 2.36 | 265.33 |

FILE 'REGISTRY' ENTERED AT 09:46:37 ON 07 SEP 2004
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STRUCTURE FILE UPDATES: 6 SEP 2004 HIGHEST RN 740796-45-6
 DICTIONARY FILE UPDATES: 6 SEP 2004 HIGHEST RN 740796-45-6

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

Please note that search-term pricing does apply when conducting SmartSELECT searches.

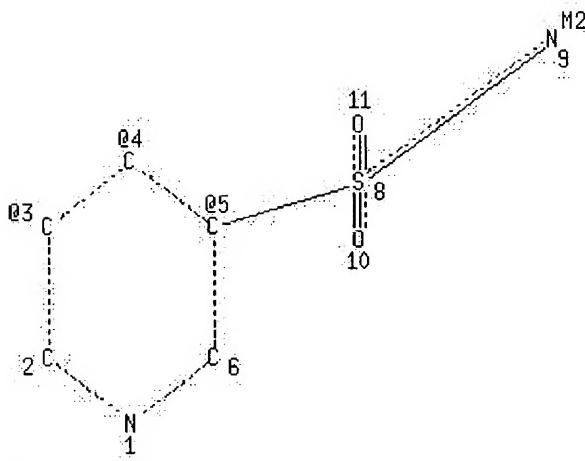
Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:
<http://www.cas.org/ONLINE/DBSS/registryss.html>

```
=>
L9      STRUCTURE uploaded
```

```
=> d 19
L9 HAS NO ANSWERS
L9      STR
```

X 07



VPA 7-3/4/5 S

NODE ATTRIBUTES:

| | | | | |
|--------|----|----|----|----|
| HCOUNT | IS | M2 | AT | 9 |
| NSPEC | IS | R | AT | 1 |
| NSPEC | IS | R | AT | 2 |
| NSPEC | IS | R | AT | 3 |
| NSPEC | IS | R | AT | 4 |
| NSPEC | IS | R | AT | 5 |
| NSPEC | IS | R | AT | 6 |
| NSPEC | IS | C | AT | 7 |
| NSPEC | IS | C | AT | 8 |
| NSPEC | IS | C | AT | 9 |
| NSPEC | IS | C | AT | 10 |
| NSPEC | IS | C | AT | 11 |

DEFAULT MLEVEL IS ATOM

MLEVEL IS CLASS AT 7 8 9 10 11

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RSPEC I

NUMBER OF NODES IS 11

STEREO ATTRIBUTES: NONE

=> s 19

SAMPLE SEARCH INITIATED 09:48:36 FILE 'REGISTRY'
 SAMPLE SCREEN SEARCH COMPLETED - 349 TO ITERATE

100.0% PROCESSED 349 ITERATIONS
 SEARCH TIME: 00.00.01

1 ANSWERS

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
 BATCH **COMPLETE**
 PROJECTED ITERATIONS: 5860 TO 8100
 PROJECTED ANSWERS: 1 TO 80

L10 1 SEA SSS SAM L9

=> s 19 full

h eb c g cg b cg

eb

THE ESTIMATED SEARCH COST FOR FILE 'REGISTRY' IS 155.00 U.S. DOLLARS
DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N or END:y
FULL SEARCH INITIATED 09:48:40 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 7048 TO ITERATE

100.0% PROCESSED 7048 ITERATIONS 22 ANSWERS
SEARCH TIME: 00.00.01

L11 22 SEA SSS FUL L9

| | | | |
|----------------------|------------|---------|--|
| => file hcaplus | | | |
| COST IN U.S. DOLLARS | SINCE FILE | TOTAL | |
| | ENTRY | SESSION | |
| FULL ESTIMATED COST | 156.26 | 421.59 | |

FILE 'HCAPLUS' ENTERED AT 09:48:42 ON 07 SEP 2004
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FILE COVERS 1907 - 7 Sep 2004 VOL 141 ISS 11
FILE LAST UPDATED: 6 Sep 2004 (20040906/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s l11/rct
42 L11
2654685 RCT/RL
L12 27 L11/RCT
(L11 (L) RCT/RL)

=> d his

(FILE 'HOME' ENTERED AT 09:38:44 ON 07 SEP 2004)

FILE 'REGISTRY' ENTERED AT 09:38:49 ON 07 SEP 2004

FILE 'CASREACT' ENTERED AT 09:43:04 ON 07 SEP 2004

| | |
|----|--------------------|
| L1 | STRUCTURE UPLOADED |
| L2 | 0 S L1 |
| L3 | 0 S L1 FULL |
| L4 | STRUCTURE UPLOADED |

FILE 'REGISTRY' ENTERED AT 09:46:10 ON 07 SEP 2004

| | |
|----|--------------------|
| L5 | STRUCTURE UPLOADED |
| L6 | 0 S L5 |
| L7 | 8 S L5 FULL |

FILE 'HCAPLUS' ENTERED AT 09:46:31 ON 07 SEP 2004
L8 12 S L7/PREP

FILE 'REGISTRY' ENTERED AT 09:46:37 ON 07 SEP 2004
L9 STRUCTURE uploaded
L10 1 S L9
L11 22 S L9 FULL

FILE 'HCAPLUS' ENTERED AT 09:48:42 ON 07 SEP 2004
L12 27 S L11/RCT

=> s 112 and 18
L13 9 L12 AND L8

FILE 'REGISTRY' ENTERED AT 09:48:56 ON 07 SEP 2004
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STRUCTURE FILE UPDATES: 6 SEP 2004 HIGHEST RN 740796-45-6
DICTIONARY FILE UPDATES: 6 SEP 2004 HIGHEST RN 740796-45-6

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

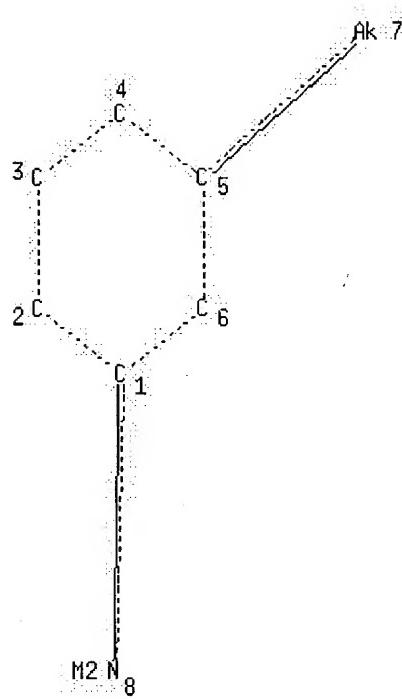
Please note that search-term pricing does apply when conducting SmartSELECT searches.

Crossover limits have been increased. See `HELP CROSSEOVER` for details.

Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:
<http://www.cas.org/ONLINE/DBSS/registryss.html>

=>
L14 STRUCTURE UPLOADED

=> d l14
L14 HAS NO ANSWERS
L14 STR



NODE ATTRIBUTES:

HCOUNT IS M2 AT 8
 NSPEC IS R AT 1
 NSPEC IS R AT 2
 NSPEC IS R AT 3
 NSPEC IS R AT 4
 NSPEC IS R AT 5
 NSPEC IS R AT 6
 NSPEC IS C AT 7
 NSPEC IS C AT 8
 DEFAULT MLEVEL IS ATOM
 MLEVEL IS CLASS AT 7 8
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RSPEC I
 NUMBER OF NODES IS 8

STEREO ATTRIBUTES: NONE

=> s l14
 SAMPLE SEARCH INITIATED 09:50:25 FILE 'REGISTRY'
 SAMPLE SCREEN SEARCH COMPLETED - 286466 TO ITERATE

0.3% PROCESSED 1000 ITERATIONS
 INCOMPLETE SEARCH (SYSTEM LIMIT EXCEEDED)
 SEARCH TIME: 00.00.01

8 ANSWERS

FULL FILE PROJECTIONS: ONLINE **INCOMPLETE**
 BATCH **INCOMPLETE**
 PROJECTED ITERATIONS: EXCEEDS 1000000
 PROJECTED ANSWERS: EXCEEDS 42963

L15 8 SEA SSS SAM L14

=> e m-toluidine/cn

h eb c g cg b cg

eb

E1 1 M-TOLUIC-.ALPHA.,.ALPHA.,.ALPHA.-D3 ACID, 2-NITRO-/CN
 E2 1 M-TOLUIC-CARBOXY-14C ACID/CN
 E3 1 --> M-TOLUIDINE/CN
 E4 1 M-TOLUIDINE .OMEGA.-METHANESULFONATE/CN
 E5 1 M-TOLUIDINE 1:1 COMPLEX WITH IODINE/CN
 E6 1 M-TOLUIDINE COMPLEX WITH P-BENZOQUINONE (1:1)/CN
 E7 1 M-TOLUIDINE COMPOUND WITH S-TRINITROBENZENE (1:1)/CN
 E8 1 M-TOLUIDINE HOMOPOLYMER/CN
 E9 1 M-TOLUIDINE NITRATE/CN
 E10 1 M-TOLUIDINE, ((2-CHLORO-4-(METHYLSULFONYL) PHENYL) AZO)-N,N-DIMETHYL-/CN
 E11 1 M-TOLUIDINE, (2,4-THIOPHENEDIYLBIS (AZO)) DI-/CN
 E12 1 M-TOLUIDINE, .ALPHA.,.ALPHA.,.ALPHA.,-TRIFLUORO-6-(O-NITROPHENYL) THIO)-/CN

=> s e3
L16 1 M-TOLUIDINE/CN

| | |
|---|--|
| => file hcplus
COST IN U.S. DOLLARS
FULL ESTIMATED COST | SINCE FILE ENTRY
TOTAL SESSION
5.69 429.64 |
|---|--|

FILE 'HCPLUS' ENTERED AT 09:50:42 ON 07 SEP 2004
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 FILE LAST UPDATED: 6 Sep 2004 (20040906/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s l16
L17 4779 L16

=> d his

(FILE 'HOME' ENTERED AT 09:38:44 ON 07 SEP 2004)

FILE 'REGISTRY' ENTERED AT 09:38:49 ON 07 SEP 2004

FILE 'CASREACT' ENTERED AT 09:43:04 ON 07 SEP 2004

| | |
|----|--------------------|
| L1 | STRUCTURE UPLOADED |
| L2 | 0 S L1 |
| L3 | 0 S L1 FULL |
| L4 | STRUCTURE UPLOADED |

FILE 'REGISTRY' ENTERED AT 09:46:10 ON 07 SEP 2004
L5 STRUCTURE uploaded
L6 0 S L5
L7 8 S L5 FULL

FILE 'HCAPLUS' ENTERED AT 09:46:31 ON 07 SEP 2004
L8 12 S L7/PREP

FILE 'REGISTRY' ENTERED AT 09:46:37 ON 07 SEP 2004
L9 STRUCTURE uploaded
L10 1 S L9
L11 22 S L9 FULL

FILE 'HCAPLUS' ENTERED AT 09:48:42 ON 07 SEP 2004
L12 27 S L11/RCT
L13 9 S L12 AND L8

FILE 'REGISTRY' ENTERED AT 09:48:56 ON 07 SEP 2004
L14 STRUCTURE uploaded
L15 8 S L14
E M-TOLUIDINE/CN
L16 1 S E3

FILE 'HCAPLUS' ENTERED AT 09:50:42 ON 07 SEP 2004
L17 4779 S L16

=> s l17 and l13
L18 5 L17 AND L13

=> d l18, bibb abs hitstr, 1-5

L18 ANSWER 1 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN

| | |
|--|-------------------------------------|
| <input checked="" type="checkbox"/> Full | <input type="checkbox"/> Summary |
| <input type="checkbox"/> Text | <input type="checkbox"/> References |

ACCESSION NUMBER: 2003:931332 HCAPLUS
DOCUMENT NUMBER: 139:395829
TITLE: Process for the preparation of highly pure torsemide
INVENTOR(S): Gutman, Arie; Ettinger, Marina; Goldring, Dmitry;
Pertsikov, Boris; Yudovitch, Lev; Tishin, Boris;
Vilensky, Alexander; Glzman, Alexander; Nisnevich,
Gennady
PATENT ASSIGNEE(S): Finetech Laboratories Ltd., Israel
SOURCE: PCT Int. Appl., 63 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:



| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|-----------------|----------|
| WO 2003097603 | A1 | 20031127 | WO 2003-IL311 | 20030415 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT,
TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ,
MD, RU, TJ, TM | | | | |

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: IL 2002-149771 A 20020521

OTHER SOURCE(S): CASREACT 139:395829

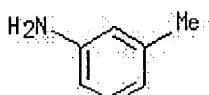
AB The present invention provides a novel process for the prepn. of highly pure torsemide by reacting of 4-m-tolylamino-3-pyridinesulfonamide with Ph isopropylcarbamate in the presence of lithium base. The present invention also provides a novel intermediate - torsemide lithium, also in hydrate or solvate form - which is a stable, solid compd., and may be simply isolated from the reaction mixt. to give after acidification practically pure torsemide without further purifn. steps.

IT 108-44-1, m-Toluidine, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
(in prepn. of highly pure torsemide)

RN 108-44-1 HCPLUS

CN Benzenamine, 3-methyl- (9CI) (CA INDEX NAME)



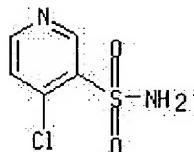
IT 33263-43-3P, 4-Chloro-3-pyridinesulfonamide 72811-73-5P

160822-47-9P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation); RACT (Reactant or reagent)
(in prepn. of highly pure torsemide)

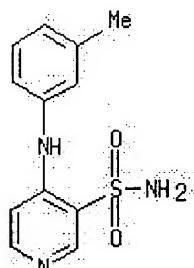
RN 33263-43-3 HCPLUS

CN 3-Pyridinesulfonamide, 4-chloro- (8CI, 9CI) (CA INDEX NAME)



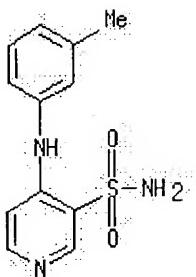
RN 72811-73-5 HCPLUS

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI) (CA INDEX NAME)



RN 160822-47-9 HCPLUS

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]-, monohydrochloride (9CI)
(CA INDEX NAME)



HCl

REFERENCE COUNT:

3

THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L18 ANSWER 2 OF 5 HCPLUS COPYRIGHT 2004 ACS on STN

 Full Text Reference

ACCESSION NUMBER:

2003:311134 HCPLUS

DOCUMENT NUMBER:

139:197336

TITLE:

Synthesis of a new, curative and effective medicine for hypertension and diuretic torasemide

AUTHOR(S):

Xiong, Zhenhu; Fei, Xuening

CORPORATE SOURCE:

Tianjin Institute of Urban Construction, Tianjin, 300384, Peop. Rep. China

SOURCE:

Zhongguo Yaowu Huaxue Zazhi (2002), 12(4), 219-221, 224

CODEN: ZYHZEF; ISSN: 1005-0108

PUBLISHER:

Zhongguo Yaowu Huaxue Zazhi Bianjibu

DOCUMENT TYPE:

Journal

LANGUAGE:

Chinese

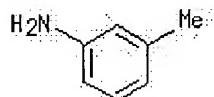
OTHER SOURCE(S):

CASREACT 139:197336

AB Torasemide was prep'd. in 5 steps with high yield from 4-hydroxypyridine by sulfonation, chlorination, amidation, substitution with 3-methylaniline, and condensation with iso-Pr isocyanate.

IT 108-44-1, m-Toluidine, reactionsRL: RCT (Reactant); RACT (Reactant or reagent)
(synthesis of torasemide)RN 108-44-1 HCPLUS

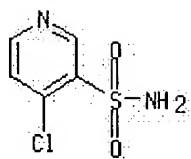
CN Benzenamine, 3-methyl- (9CI) (CA INDEX NAME)

IT 33263-43-3P, 4-Chloropyridine-3-sulfonamide 72811-73-5P,

3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]-

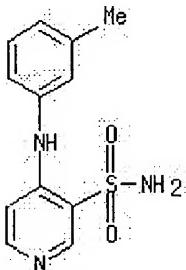
RL: RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation); RACT (Reactant or reagent)
(synthesis of torasemide)RN 33263-43-3 HCPLUS

CN 3-Pyridinesulfonamide, 4-chloro- (8CI, 9CI) (CA INDEX NAME)



RN 72811-73-5 HCAPLUS

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI) (CA INDEX NAME)



L18 ANSWER 3 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN

 FULL CHM References
 Text

ACCESSION NUMBER: 1995:301468 HCAPLUS
 DOCUMENT NUMBER: 122:105616
 TITLE: Chemical structure and physico-chemical properties of torasemide
 AUTHOR(S): Kondo, Nobuo; Kimura, Masazo; Yamamoto, Madoka; Hashimoto, Hirotaka; Kawamata, Ken-ichiro; Kawano, Kensuke; Schmidt, Heinrich
 CORPORATE SOURCE: New Product Res. Laboratories, Green Cross Corp., Hirakata, 573, Japan
 SOURCE: Iyakuhin Kenkyu (1994), 25(9), 734-50
 CODEN: IYKEDH; ISSN: 0287-0894
 PUBLISHER: Nippon Koteisho Kyokai
 DOCUMENT TYPE: Journal
 LANGUAGE: Japanese

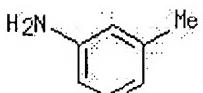
AB The chem. structure of torasemide, a diuretic agent, was confirmed on the basis of elemental anal., UV, IR, NMR and mass spectra. The physico-chem. properties were clarified by studying the appearance, solv., hygroscopicity, photo-stability, m.p., thermal anal., pH of aq. soln., dissocn. const., partition coeff., polymorphism, specific optical rotation and impurities. Investigations into the stability of torasemide under severe conditions were also conducted to define the degradative pathway for the compd.

IT 108-44-1, reactions 33263-43-3, 4-Chloropyridine-3-sulfonamide

RL: RCT (Reactant); RACT (Reactant or reagent)
 (synthesis and physico-chem. properties of torasemide)

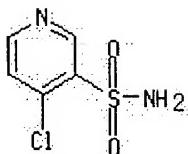
RN 108-44-1 HCAPLUS

CN Benzenamine, 3-methyl- (9CI) (CA INDEX NAME)



RN 33263-43-3 HCAPLUS

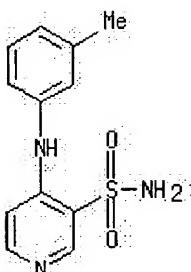
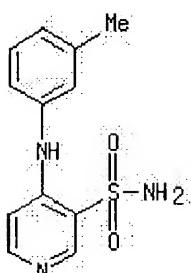
CN 3-Pyridinesulfonamide, 4-chloro- (8CI, 9CI) (CA INDEX NAME)

IT 72811-73-5P 160822-47-9P

RL: RCT (Reactant); SPN (Synthetic preparation); **PREP**
(Preparation); RACT (Reactant or reagent)
 (synthesis and physico-chem. properties of torasemide)

RN 72811-73-5 HCAPLUS

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI) (CA INDEX NAME)

RN 160822-47-9 HCAPLUSCN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]-, monohydrochloride (9CI)
 (CA INDEX NAME)

HCl

L18 ANSWER 4 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN

 FULL TEXT SCOPED REFERENCES

ACCESSION NUMBER:

1988:160942 HCAPLUS

DOCUMENT NUMBER:

108:160942

TITLE:

Chemistry and pharmacological properties of the
 pyridine-3-sulfonylurea derivative torasemide
 Delarge, J.

AUTHOR(S):

Inst. Pharm., State Univ. Liege, Liege, B-4000, Belg.
 Arzneimittel-Forschung (1988), 38(1A), 144-50

CORPORATE SOURCE:

CODEN: ARZNAD; ISSN: 0004-4172

SOURCE:

DOCUMENT TYPE:

Journal

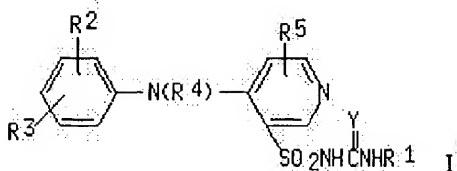
LANGUAGE:

English

OTHER SOURCE(S):

CASREACT 108:160942

GI



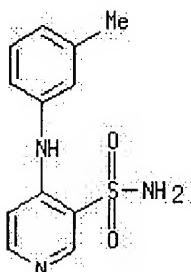
AB Out of a series of pyridine-3-sulfonylureas (I; R₁ = Me, Et, Pr, etc.; R₂ = 3-CF₃, 3-NO₂, 3-MeO, 3-Me, 3-Et, 2-, 3-, 4-Cl, etc.; R₃ = H or 4-, 5-Cl; R₄ = R₅ = H or Me; Y = O or S) with diuretic activity torasemide (I; R₁ = i-Pr, R₂ = 3-Me, R₃ = R₄ = H, Y = O), which was prep'd., proved to be one of the most active derivs. In the rat, urinary vol. and electrolyte excretions increased linearly with the logarithm of the dose, thus resembling the profile of a high ceiling diuretic. Torasemide was equally potent both by oral and parenteral administration. Compared to furosemide, torasemide was 9-40 times more potent on wt. basis in the rat. For the same natriuretic effect, however, K⁺ losses with torasemide were less than with furosemide. The diuretic effect of torasemide lasted longer than that of furosemide. The plasma elimination half-life of torasemide was ~1.5 h in the rat and bioavailability was nearly complete. Torasemide was 98-99% bound to plasma proteins. No in vitro interaction was found with the coumarin deriv. warfarin.

IT 72811-73-5P, 3-Sulfonamido-4-(3-methylanilino)pyridine

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reaction with isopropylcyanate)

RN 72811-73-5 HCPLUS

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI) (CA INDEX NAME)

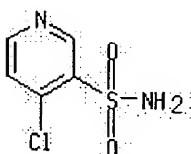


IT 33263-43-3P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reaction with toluidine or isopropylcyanate)

RN 33263-43-3 HCPLUS

CN 3-Pyridinesulfonamide, 4-chloro- (8CI, 9CI) (CA INDEX NAME)



IT 108-44-1, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with chloropyridinesulfonamide or isopropylchloropyridylsulfonylurea)

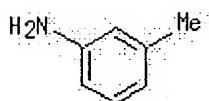
RN 108-44-1 HCPLUS

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eb c g cg b cg

eb

CN Benzenamine, 3-methyl- (9CI) (CA INDEX NAME)



L18 ANSWER 5 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Text References

ACCESSION NUMBER: 1976:59218 HCAPLUS
 DOCUMENT NUMBER: 84:59218
 TITLE: Pyridine derivatives
 INVENTOR(S): Delarge, Jacques E.; Lapierre, Charles L.; Georges, Andre H.
 PATENT ASSIGNEE(S): Christiaens, A., S. A., Belg.
 SOURCE: Ger. Offen., 39 pp.
 CODEN: GWXXBX
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|-------------|------|----------|------------------------|----------|
| DE 2516025 | A1 | 19751106 | <u>DE 1975-2516025</u> | 19750412 |
| DE 2516025 | C2 | 19881103 | | |
| ZA 7502243 | A | 19760331 | <u>ZA 1975-2243</u> | 19750408 |
| BE 827844 | A1 | 19751013 | <u>BE 1975-155330</u> | 19750411 |
| ES 436581 | A1 | 19770401 | <u>ES 1975-436581</u> | 19750414 |
| IL 47084 | A1 | 19790131 | <u>IL 1975-47084</u> | 19750414 |
| SE 7504409 | A | 19751020 | <u>SE 1975-4409</u> | 19750416 |
| SE 424320 | B | 19820712 | | |
| SE 424320 | C | 19821021 | | |
| NL 7504521 | A | 19751021 | <u>NL 1975-4521</u> | 19750416 |
| NL 183580 | B | 19880701 | | |
| NL 183580 | C | 19881201 | | |
| FR 2267775 | A1 | 19751114 | <u>FR 1975-11791</u> | 19750416 |
| FR 2267775 | B1 | 19781110 | | |
| US 4018929 | A | 19770419 | <u>US 1975-568759</u> | 19750416 |
| AT 7502882 | A | 19771115 | <u>AT 1975-2882</u> | 19750416 |
| AT 345832 | B | 19781010 | <u>AT 1977-1898</u> | 19750416 |
| CH 609045 | A | 19790215 | <u>CH 1975-4857</u> | 19750416 |
| CH 610890 | A | 19790515 | <u>CH 1978-2163</u> | 19750416 |
| CH 612424 | A | 19790731 | <u>CH 1978-2164</u> | 19750416 |
| CA 1070313 | A1 | 19800122 | <u>CA 1975-224805</u> | 19750416 |
| JP 50142571 | A2 | 19751117 | <u>JP 1975-47371</u> | 19750417 |
| JP 59051536 | B4 | 19841214 | | |
| DD 121936 | C | 19760905 | <u>DD 1975-185508</u> | 19750417 |
| DD 126887 | C | 19770817 | <u>DD 1975-194800</u> | 19750417 |
| US 4042693 | A | 19770816 | <u>US 1976-694422</u> | 19760609 |
| US 4055650 | A | 19771025 | <u>US 1976-694421</u> | 19760609 |
| ES 453328 | A1 | 19771101 | <u>ES 1976-453328</u> | 19761115 |
| ES 453327 | A1 | 19771116 | <u>ES 1976-453327</u> | 19761115 |
| ES 453329 | A1 | 19771116 | <u>ES 1976-453329</u> | 19761115 |
| AT 7701899 | A | 19771115 | <u>AT 1977-1899</u> | 19770318 |
| AT 7701897 | A | 19771115 | <u>AT 1977-1897</u> | 19770318 |
| SE 7907618 | A | 19790913 | <u>SE 1979-7618</u> | 19790913 |
| US 30633 | E | 19810602 | <u>US 1980-119601</u> | 19800207 |

PRIORITY APPLN. INFO.:

| | |
|-----------------------|----------|
| <u>GB 1974-16836</u> | 19740417 |
| <u>GB 1975-16836</u> | 19750414 |
| <u>AT 1975-2882</u> | 19750416 |
| <u>US 1975-568759</u> | 19750416 |
| <u>US 1979-31101</u> | 19790418 |

GI For diagram(s), see printed CA Issue.

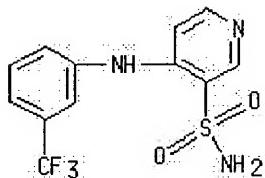
AB Pyridinesulfonamides I [R = C₆H₄R₃ (R₃ = Cl, F₃C, Me, MeO, H, Br, F, NO₂, Et, NH₂), Et, iso-Pr, 4-methylfuryl, C₆H₃C₁₂, C₆H₃(CF₃)Cl; R₁ = alkylcarbamoyl, cyclohexylcarbamoyl, CSNHCH₂CH₂:CH₂, CONHPh, CONHC₆H₄Cl-p, alkylthiocarbamoyl, H, COEt; R₂ = H, Me; X = NH, NMe, O, S, NET; n = 0, 1], useful as inflammation inhibitors and diuretics, were prep'd. by various methods, e.g., treatment of I (R₁ = H) with an isocyanate or isothiocyanate. Reaction of I (R₁ = H) with an alkyl haloformate, then with an amine, gave I (R₁ = substituted carbamoyl). II reacted with amines R₅NHR to give I (X = NH, NMe, NET). II was treated with NaXR (R = substituted phenyl, X = O, S) to give the corresponding I. To prep. I (R₁ = acyl) or pyrido thiadiazole III, I (R₁ = H) was reacted with EtCOCl, (EtCO)₂O, or BzCl. Treatment of I (R = alkylthiocarbamoyl) with aq. alc. Na₂CO₃ and HgO gave I (R₁ = alkylcarbamoyl). Oxidn. of I (n = 0) gave I (n = 1). I caused 1.6-92.0% inhibition of carageenan-induced edema in rats [best results by I (R = 3,4-C₁₂C₆H₃, R₁ = CONHCHMe₂, X = NH, R₂ = H, n = 0] and caused 3.6-106.4 mg/kg increase in urine of rats [best results by I (R = 3-F₃CC₆H₄, R₁ = CONHET, X = NH, R₂ = H, n = 1)].

IT 38030-43-2P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reactions of)

RN 38030-43-2 HCPLUS

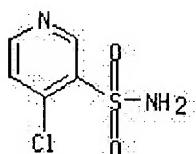
CN 3-Pyridinesulfonamide, 4-[(3-(trifluoromethyl)phenyl)amino]- (9CI) (CA INDEX NAME)

IT 33263-43-3

RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with chlorophenol)

RN 33263-43-3 HCPLUS

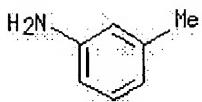
CN 3-Pyridinesulfonamide, 4-chloro- (8CI, 9CI) (CA INDEX NAME)

IT 108-44-1

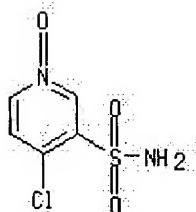
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with chloropyridinesulfonamide oxide)

RN 108-44-1 HCPLUS

CN Benzenamine, 3-methyl- (9CI) (CA INDEX NAME)

IT 58155-57-0RL: RCT (Reactant): RACT (Reactant or reagent)
(reaction of, with toluidine)RN 58155-57-0 HCPLUS

CN 3-Pyridinesulfonamide, 4-chloro-, 1-oxide (9CI) (CA INDEX NAME)



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(FILE 'HOME' ENTERED AT 09:38:44 ON 07 SEP 2004)

FILE 'REGISTRY' ENTERED AT 09:38:49 ON 07 SEP 2004

FILE 'CASREACT' ENTERED AT 09:43:04 ON 07 SEP 2004

L1 STRUCTURE UPLOADED

L2 0 S L1

L3 0 S L1 FULL

L4 STRUCTURE UPLOADED

FILE 'REGISTRY' ENTERED AT 09:46:10 ON 07 SEP 2004

L5 STRUCTURE UPLOADED

L6 0 S L5

L7 8 S L5 FULL

FILE 'HCPLUS' ENTERED AT 09:46:31 ON 07 SEP 2004

L8 12 S L7/PREP

FILE 'REGISTRY' ENTERED AT 09:46:37 ON 07 SEP 2004

L9 STRUCTURE UPLOADED

L10 1 S L9

L11 22 S L9 FULL

FILE 'HCPLUS' ENTERED AT 09:48:42 ON 07 SEP 2004

L12 27 S L11/RCT

L13 9 S L12 AND L8

FILE 'REGISTRY' ENTERED AT 09:48:56 ON 07 SEP 2004

L14 STRUCTURE UPLOADED

L15 8 S L14

E M-TOLUIDINE/CN

L16 1 S E3

FILE 'HCPLUS' ENTERED AT 09:50:42 ON 07 SEP 2004

L17 4779 S L16

L18 5 S L17 AND L13

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L19 159 CHE, D?/AU
 0 L18 AND CHE, D?/AU

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L20 0 L18 AND GUNTOORI, B?/AU

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 244 DUNCAN, S?/AU
L21 0 L18 AND DUNCAN, S?/AU

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h eb c g cg b cg

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| <u>NEWS</u> | <u>1</u> | Web Page URLs for STN Seminar Schedule ~ N. America |
| <u>NEWS</u> | <u>2</u> | "Ask CAS" for self-help around the clock |
| <u>NEWS</u> | <u>3</u> | May 12 EXTEND option available in structure searching |
| <u>NEWS</u> | <u>4</u> | May 12 Polymer links for the POLYLINK command completed in REGISTRY |
| <u>NEWS</u> | <u>5</u> | May 27 New UPM (Update Code Maximum) field for more efficient patent SDIs in CAplus |
| <u>NEWS</u> | <u>6</u> | May 27 CAplus super roles and document types searchable in REGISTRY |
| <u>NEWS</u> | <u>7</u> | Jun 28 Additional enzyme-catalyzed reactions added to CASREACT |
| <u>NEWS</u> | <u>8</u> | Jun 28 ANTE, AQUALINE, BIOENG, CIVILENG, ENVIROENG, MECHENG, and WATER from CSA now available on STN(R) |
| <u>NEWS</u> | <u>9</u> | Jul 12 BEILSTEIN enhanced with new display and select options, resulting in a closer connection to BABS |
| <u>NEWS</u> | <u>10</u> | Jul 30 BEILSTEIN on STN workshop to be held August 24 in conjunction with the 228th ACS National Meeting |
| <u>NEWS</u> | <u>11</u> | AUG 02 IFIPAT/IFIUDB/IFICDB reloaded with new search and display fields |
| <u>NEWS</u> | <u>12</u> | AUG 02 CAplus and CA patent records enhanced with European and Japan Patent Office Classifications |
| <u>NEWS</u> | <u>13</u> | AUG 02 STN User Update to be held August 22 in conjunction with the 228th ACS National Meeting |
| <u>NEWS</u> | <u>14</u> | AUG 02 The Analysis Edition of STN Express with Discover! (Version 7.01 for Windows) now available |
| <u>NEWS</u> | <u>15</u> | AUG 04 Pricing for the Save Answers for SciFinder Wizard within STN Express with Discover! will change September 1, 2004 |
| <u>NEWS</u> | <u>16</u> | AUG 27 BIOCOMMERCE: Changes and enhancements to content coverage |
| <u>NEWS</u> | <u>17</u> | AUG 27 BIOTECHABS/BIOTECHDS: Two new display fields added for legal status data from INPADOC |
| <u>NEWS</u> | <u>18</u> | SEP 01 INPADOC: New family current-awareness alert (SDI) available |
| <u>NEWS</u> | <u>19</u> | SEP 01 New pricing for the Save Answers for SciFinder Wizard within STN Express with Discover! |
| <u>NEWS</u> | <u>20</u> | SEP 01 New display format, HITSTR, available in WPIDS/WPINDEX/WPIX |
| <u>NEWS EXPRESS</u> | | JULY 30 CURRENT WINDOWS VERSION IS V7.01, CURRENT MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP), AND CURRENT DISCOVER FILE IS DATED 11 AUGUST 2004 |
| <u>NEWS HOURS</u> | | STN Operating Hours Plus Help Desk Availability |
| <u>NEWS INTER</u> | | General Internet Information |
| <u>NEWS LOGIN</u> | | Welcome Banner and News Items |
| <u>NEWS PHONE</u> | | Direct Dial and Telecommunication Network Access to STN |
| <u>NEWS WWW</u> | | CAS World Wide Web Site (general information) |

Enter NEWS followed by the item number or name to see news on that specific topic.

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FILE 'HOME' ENTERED AT 09:38:44 ON 07 SEP 2004

=> file reg
COST IN U.S. DOLLARS

FULL ESTIMATED COST

| SINCE FILE ENTRY | TOTAL SESSION |
|------------------|---------------|
| 0.21 | 0.21 |

h eb c g cg b cg

eb

FILE 'REGISTRY' ENTERED AT 09:38:49 ON 07 SEP 2004
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STRUCTURE FILE UPDATES: 6 SEP 2004 HIGHEST RN 740796-45-6
 DICTIONARY FILE UPDATES: 6 SEP 2004 HIGHEST RN 740796-45-6

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

Please note that search-term pricing does apply when conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:

<http://www.cas.org/ONLINE/DBSS/registryss.html>

| => file casreact | COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
|---------------------|----------------------|------------------|---------------|
| FULL ESTIMATED COST | | 2.94 | 3.15 |

FILE 'CASREACT' ENTERED AT 09:43:04 ON 07 SEP 2004
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FILE CONTENT:1840 - 5 Sep 2004 VOL 141 ISS 10

```
*****
*          *
*      CASREACT now has more than 8 million reactions      *
*          *
*****
```

Some CASREACT records are derived from the ZIC/VINITI database (1974-1991) provided by InfoChem, INPI data prior to 1986, and Biotransformations database compiled under the direction of Professor Dr. Klaus Kieslich.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=>
 L1 STRUCTURE uploaded

=> d l1
 L1 HAS NO ANSWERS
 L1 STR

=> s 11

SAMPLE SEARCH INITIATED 09:43:40 FILE 'CASREACT'
SCREENING COMPLETE - 198 REACTIONS TO VERIFY FROM 2 DOCUMENTS

100.0% DONE 198 VERIFIED 0 HIT RXNS 0 DOCS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**

PROJECTED VERIFICATIONS: 3116 TO 4804

PROJECTED ANSWERS: 0 TO 0

L2 0 SEA SSS SAM L1 (0 REACTIONS)

=> s 11 full

THE ESTIMATED SEARCH COST FOR FILE 'CASREACT' IS 102.30 U.S. DOLLARS

DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N or END:y

FULL SEARCH INITIATED 09:43:47 FILE 'CASREACT'

SCREENING COMPLETE - 308 REACTIONS TO VERIFY FROM 12 DOCUMENTS

100.0% DONE 308 VERIFIED 0 HIT RXNS 0 DOCS
SEARCH TIME: 00.00.01

L3 0 SEA SSS FUL L1 (0 REACTIONS)

=>

L4 STRUCTURE UPLOADED

=> file reg

| | | |
|----------------------|------------------|---------------|
| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
| FULL ESTIMATED COST | 104.40 | 107.55 |

FILE 'REGISTRY' ENTERED AT 09:46:10 ON 07 SEP 2004

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STRUCTURE FILE UPDATES: 6 SEP 2004 HIGHEST RN 740796-45-6
DICTIONARY FILE UPDATES: 6 SEP 2004 HIGHEST RN 740796-45-6

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

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Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:

<http://www.cas.org/ONLINE/DBSS/registryss.html>

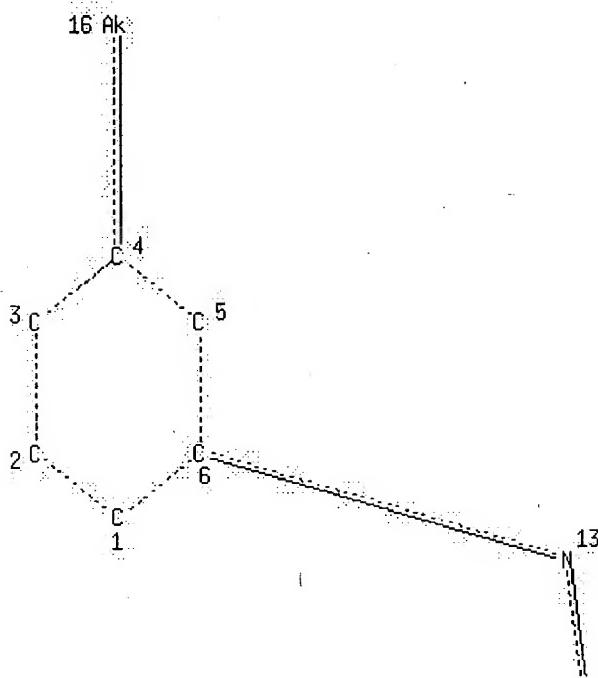
=>

L5 STRUCTURE UPLOADED

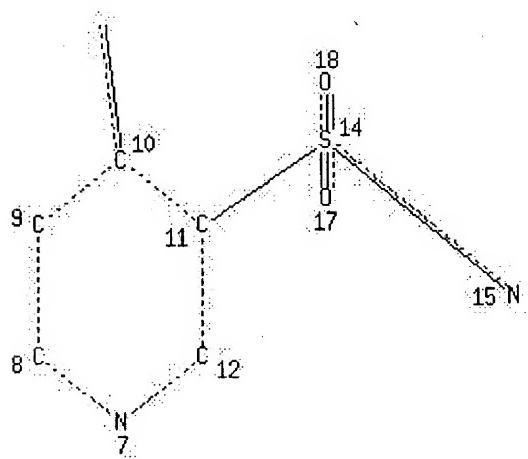
=> d 15

L5 HAS NO ANSWERS

L5 STR



Page 1-A



Page 2-A

M2

Page 2-B

NODE ATTRIBUTES:

| | | | |
|--------|-------|----|----|
| HCOUNT | IS M2 | AT | 15 |
| NSPEC | IS R | AT | 1 |
| NSPEC | IS R | AT | 2 |
| NSPEC | IS R | AT | 3 |
| NSPEC | IS R | AT | 4 |
| NSPEC | IS R | AT | 5 |
| NSPEC | IS R | AT | 6 |
| NSPEC | IS R | AT | 7 |
| NSPEC | IS R | AT | 8 |
| NSPEC | IS R | AT | 9 |
| NSPEC | IS R | AT | 10 |
| NSPEC | IS R | AT | 11 |
| NSPEC | IS R | AT | 12 |
| NSPEC | IS C | AT | 13 |

h eb c g cg b cg

eb

NSPEC IS C AT 14
 NSPEC IS C AT 15
 NSPEC IS C AT 16
 NSPEC IS C AT 17
 NSPEC IS C AT 18
 DEFAULT MLEVEL IS ATOM
 MLEVEL IS CLASS AT 13 14 15 16 17 18
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RSPEC I
 NUMBER OF NODES IS 18

STEREO ATTRIBUTES: NONE

=> s 15
 SAMPLE SEARCH INITIATED 09:46:23 FILE 'REGISTRY'
 SAMPLE SCREEN SEARCH COMPLETED - 28 TO ITERATE

100.0% PROCESSED 28 ITERATIONS 0 ANSWERS
 SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
 BATCH **COMPLETE**
 PROJECTED ITERATIONS: 243 TO 877
 PROJECTED ANSWERS: 0 TO 0

L6 0 SEA SSS SAM L5

=> s 15 full
 THE ESTIMATED SEARCH COST FOR FILE 'REGISTRY' IS 155.00 U.S. DOLLARS
 DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N or END:y
 FULL SEARCH INITIATED 09:46:27 FILE 'REGISTRY'
 FULL SCREEN SEARCH COMPLETED - 538 TO ITERATE

100.0% PROCESSED 538 ITERATIONS 8 ANSWERS
 SEARCH TIME: 00.00.01

L7 8 SEA SSS FUL L5

=> file hcplus
 COST IN U.S. DOLLARS SINCE FILE TOTAL
 ENTRY SESSION
 FULL ESTIMATED COST 155.42 262.97

FILE 'HCPLUS' ENTERED AT 09:46:31 ON 07 SEP 2004
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FILE COVERS 1907 - 7 Sep 2004 VOL 141 ISS 11
 FILE LAST UPDATED: 6 Sep 2004 (20040906/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

```
=> s 17/prep
      23 L7
      3192603 PREP/RL
L8      12 L7/PREP
          (L7 (L) PREP/RL)
```

| | | | |
|----------------------|--|------------|---------|
| => file reg | | SINCE FILE | TOTAL |
| COST IN U.S. DOLLARS | | ENTRY | SESSION |
| FULL ESTIMATED COST | | 2.36 | 265.33 |

FILE 'REGISTRY' ENTERED AT 09:46:37 ON 07 SEP 2004
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STRUCTURE FILE UPDATES: 6 SEP 2004 HIGHEST RN 740796-45-6
 DICTIONARY FILE UPDATES: 6 SEP 2004 HIGHEST RN 740796-45-6

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

Please note that search-term pricing does apply when conducting SmartSELECT searches.

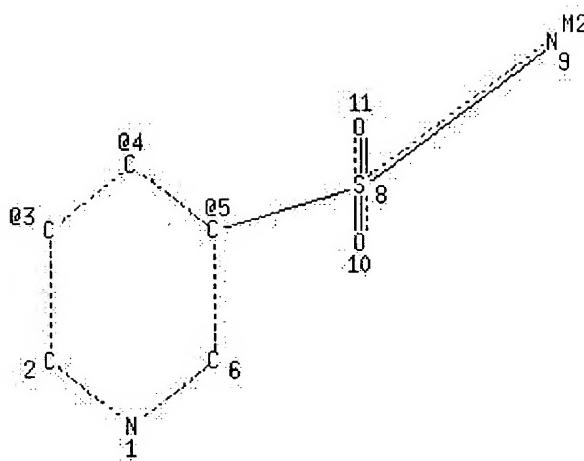
Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:
<http://www.cas.org/ONLINE/DBSS/registryss.html>

```
=>
L9      STRUCTURE uploaded
```

```
=> d 19
L9 HAS NO ANSWERS
L9      STR
```

X.07



VPA 7-3/4/5 S

NODE ATTRIBUTES:

```

HCOUNT IS M2      AT    9
NSPEC  IS R       AT    1
NSPEC  IS R       AT    2
NSPEC  IS R       AT    3
NSPEC  IS R       AT    4
NSPEC  IS R       AT    5
NSPEC  IS R       AT    6
NSPEC  IS C       AT    7
NSPEC  IS C       AT    8
NSPEC  IS C       AT    9
NSPEC  IS C       AT   10
NSPEC  IS C       AT   11
DEFAULT MLEVEL IS ATOM
MLEVEL IS CLASS  AT    7  8  9 10 11
DEFAULT ECLEVEL IS LIMITED

```

GRAPH ATTRIBUTES:

```

RSPEC I
NUMBER OF NODES IS  11

```

STEREO ATTRIBUTES: NONE

=> s 19
SAMPLE SEARCH INITIATED 09:48:36 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 349 TO ITERATE

100.0% PROCESSED 349 ITERATIONS 1 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 5860 TO 8100
PROJECTED ANSWERS: 1 TO 80

L10 1 SEA SSS SAM L9

=> s 19 full

h eb c g cg b cg

eb

THE ESTIMATED SEARCH COST FOR FILE 'REGISTRY' IS 155.00 U.S. DOLLARS
DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N or END:y
FULL SEARCH INITIATED 09:48:40 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 7048 TO ITERATE

100.0% PROCESSED 7048 ITERATIONS 22 ANSWERS
SEARCH TIME: 00.00.01

L11 22 SEA SSS FUL L9

| | | |
|----------------------|------------|---------|
| => file hcplus | SINCE FILE | TOTAL |
| COST IN U.S. DOLLARS | ENTRY | SESSION |
| FULL ESTIMATED COST | 156.26 | 421.59 |

FILE 'HCPLUS' ENTERED AT 09:48:42 ON 07 SEP 2004
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FILE COVERS 1907 - 7 Sep 2004 VOL 141 ISS 11
FILE LAST UPDATED: 6 Sep 2004 (20040906/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s l11/rct
42 L11
2654685 RCT/RL
L12 27 L11/RCT
(L11 (L) RCT/RL)

=> d his

(FILE 'HOME' ENTERED AT 09:38:44 ON 07 SEP 2004)

FILE 'REGISTRY' ENTERED AT 09:38:49 ON 07 SEP 2004

FILE 'CASREACT' ENTERED AT 09:43:04 ON 07 SEP 2004
L1 STRUCTURE uploaded
L2 0 S L1
L3 0 S L1 FULL
L4 STRUCTURE uploaded

FILE 'REGISTRY' ENTERED AT 09:46:10 ON 07 SEP 2004
L5 STRUCTURE uploaded
L6 0 S L5
L7 8 S L5 FULL

L8 12 S L7/PREP

FILE 'REGISTRY' ENTERED AT 09:46:37 ON 07 SEP 2004
L9 STRUCTURE uploaded
L10 1 S L9
L11 22 S L9 FULL

FILE 'HCAPLUS' ENTERED AT 09:48:42 ON 07 SEP 2004
L12 27 S L11/RCT

=> s 112 and 18
L13 9 L12 AND L8

FILE 'REGISTRY' ENTERED AT 09:48:56 ON 07 SEP 2004
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DICTIONARY FILE UPDATES: 6 SEP 2004 HIGHEST RN 740796-45-6

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

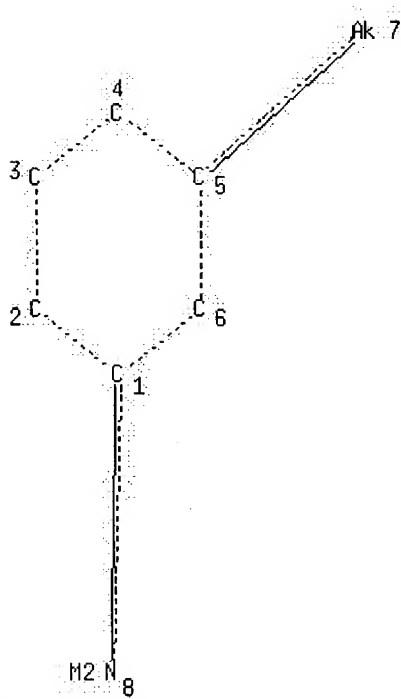
Please note that search-term pricing does apply when conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more information enter HELP_PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:
<http://www.cas.org/ONLINE/DBSS/registryss.html>

=> L14 STRUCTURE UPLOADED

=> & L14
L14 HAS NO ANSWERS
L14 STR



NODE ATTRIBUTES:

HCOUNT IS M2 AT 8
 NSPEC IS R AT 1
 NSPEC IS R AT 2
 NSPEC IS R AT 3
 NSPEC IS R AT 4
 NSPEC IS R AT 5
 NSPEC IS R AT 6
 NSPEC IS C AT 7
 NSPEC IS C AT 8
 DEFAULT MLEVEL IS ATOM
 MLEVEL IS CLASS AT 7 8
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RSPEC I
 NUMBER OF NODES IS 8

STEREO ATTRIBUTES: NONE

=> s l14
 SAMPLE SEARCH INITIATED 09:50:25 FILE 'REGISTRY'
 SAMPLE SCREEN SEARCH COMPLETED - 286466 TO ITERATE

0.3% PROCESSED 1000 ITERATIONS
 INCOMPLETE SEARCH (SYSTEM LIMIT EXCEEDED)
 SEARCH TIME: 00.00.01

8 ANSWERS

FULL FILE PROJECTIONS: ONLINE **INCOMPLETE**
 BATCH **INCOMPLETE**
 PROJECTED ITERATIONS: EXCEEDS 1000000
 PROJECTED ANSWERS: EXCEEDS 42963

L15 8 SEA SSS SAM L14

=> e m-toluidine/cn

h eb c g cg b cg

eb

E1 1 M-TOLUIDIC-.ALPHA.,.ALPHA.,.ALPHA.-D3 ACID, 2-NITRO-/CN
 E2 1 M-TOLUIDIC-CARBOXY-14C ACID/CN
 E3 1 --> M-TOLUIDINE/CN
 E4 1 M-TOLUIDINE .OMEGA.-METHANESULFONATE/CN
 E5 1 M-TOLUIDINE 1:1 COMPLEX WITH IODINE/CN
 E6 1 M-TOLUIDINE COMPLEX WITH P-BENZOQUINONE (1:1)/CN
 E7 1 M-TOLUIDINE COMPOUND WITH S-TRINITROBENZENE (1:1)/CN
 E8 1 M-TOLUIDINE HOMOPOLYMER/CN
 E9 1 M-TOLUIDINE NITRATE/CN
 E10 1 M-TOLUIDINE, ((2-CHLORO-4-(METHYLSULFONYL) PHENYL)AZO)-N,N-DIMETHYL-/CN
 E11 1 M-TOLUIDINE, (2,4-THIOPHENEDIYL(BIS(AZO))DI-/CN
 E12 1 M-TOLUIDINE, .ALPHA.,.ALPHA.,.ALPHA.,-TRIFLUORO-6-((O-NITROPHENYL)THIO)-/CN

=> s e3
L16 1 M-TOLUIDINE/CN

=> file hcaplus

| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
|----------------------|------------------|---------------|
| FULL ESTIMATED COST | 5.69 | 429.64 |

FILE 'HCAPLUS' ENTERED AT 09:50:42 ON 07 SEP 2004
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FILE COVERS 1907 - 7 Sep 2004 VOL 141 ISS 11
 FILE LAST UPDATED: 6 Sep 2004 (20040906/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s l16
L17 4779 L16

=> d his

(FILE 'HOME' ENTERED AT 09:38:44 ON 07 SEP 2004)

FILE 'REGISTRY' ENTERED AT 09:38:49 ON 07 SEP 2004

FILE 'CASREACT' ENTERED AT 09:43:04 ON 07 SEP 2004

L1 STRUCTURE UPLOADED
 L2 0 S L1
 L3 0 S L1 FULL
 L4 STRUCTURE UPLOADED

FILE 'REGISTRY' ENTERED AT 09:46:10 ON 07 SEP 2004
L5 STRUCTURE UPLOADED
L6 0 S L5
L7 8 S L5 FULL

FILE 'HCAPLUS' ENTERED AT 09:46:31 ON 07 SEP 2004
L8 12 S L7/PREP

FILE 'REGISTRY' ENTERED AT 09:46:37 ON 07 SEP 2004
L9 STRUCTURE UPLOADED
L10 1 S L9
L11 22 S L9 FULL

FILE 'HCAPLUS' ENTERED AT 09:48:42 ON 07 SEP 2004
L12 27 S L11/RCT
L13 9 S L12 AND L8

FILE 'REGISTRY' ENTERED AT 09:48:56 ON 07 SEP 2004
L14 STRUCTURE UPLOADED
L15 8 S L14
L16 E M-TOLUIDINE/CN
L17 1 S E3

FILE 'HCAPLUS' ENTERED AT 09:50:42 ON 07 SEP 2004
L17 4779 S L16

=> s l17 and l13
L18 5 L17 AND L13

=> d l18, ihibb abs hitstr, 1-5

L18 ANSWER 1 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Search
 Text References

ACCESSION NUMBER: 2003:931332 HCAPLUS
DOCUMENT NUMBER: 139:395829
TITLE: Process for the preparation of highly pure torsemide
INVENTOR(S): Gutman, Arie; Ettinger, Marina; Goldring, Dmitry;
Pertsikov, Boris; Yudovitch, Lev; Tishin, Boris;
Vilensky, Alexander; Glzman, Alexander; Nisnevich,
Gennady
PATENT ASSIGNEE(S): Finetech Laboratories Ltd., Israel
SOURCE: PCT Int. Appl., 63 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|-----------------|----------|
| WO 2003097603 | A1 | 20031127 | WO 2003-IL311 | 20030415 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT,
TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ,
MD, RU, TJ, TM | | | | |

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.:IL 2002-149771

A 20020521

OTHER SOURCE(S): CASREACT 139:395829

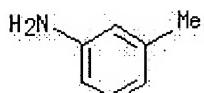
AB The present invention provides a novel process for the prepn. of highly pure torsemide by reacting of 4-m-tolylamino-3-pyridinesulfonamide with Ph isopropylcarbamate in the presence of lithium base. The present invention also provides a novel intermediate - torsemide lithium, also in hydrate or solvate form - which is a stable, solid compd., and may be simply isolated from the reaction mixt. to give after acidification practically pure torsemide without further purifn. steps.

IT 108-44-1, m-Toluidine, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
(in prepn. of highly pure torsemide)

RN 108-44-1 HCPLUS

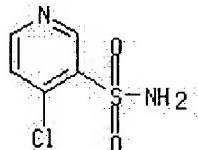
CN Benzenamine, 3-methyl- (9CI) (CA INDEX NAME)

IT 33263-43-3P, 4-Chloro-3-pyridinesulfonamide 72811-73-5P

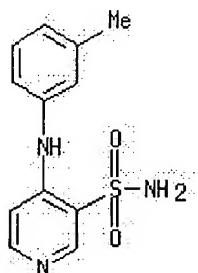
160822-47-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation); RACT (Reactant or reagent)
(in prepn. of highly pure torsemide)

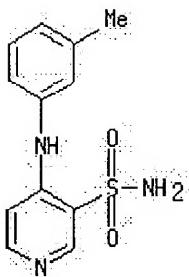
RN 33263-43-3 HCPLUS

CN 3-Pyridinesulfonamide, 4-chloro- (8CI, 9CI) (CA INDEX NAME)

RN 72811-73-5 HCPLUS

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI) (CA INDEX NAME)

RN 160822-47-9 HCPLUSCN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]-, monohydrochloride (9CI)
(CA INDEX NAME)



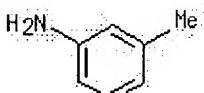
HC1

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

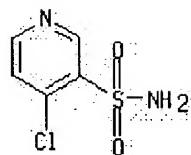
L18 ANSWER 2 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Abstract References
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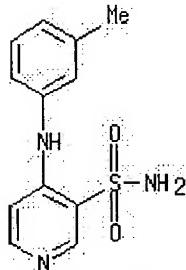
ACCESSION NUMBER: 2003:311134 HCAPLUS
 DOCUMENT NUMBER: 139:197336
 TITLE: Synthesis of a new, curative and effective medicine for hypertension and diuretic torasemide
 AUTHOR(S): Xiong, Zhenhu; Fei, Xuening
 CORPORATE SOURCE: Tianjin Institute of Urban Construction, Tianjin, 300384, Peop. Rep. China
 SOURCE: Zhongguo Yaowu Huaxue Zazhi (2002), 12(4), 219-221, 224
 CODEN: ZYHZEF; ISSN: 1005-0108
 PUBLISHER: Zhongguo Yaowu Huaxue Zazhi Bianjibu
 DOCUMENT TYPE: Journal
 LANGUAGE: Chinese
 OTHER SOURCE(S): CASREACT 139:197336
 AB Torasemide was prep'd. in 5 steps with high yield from 4-hydroxypyridine by sulfonation, chlorination, amidation, substitution with 3-methylaniline, and condensation with iso-Pr isocyanate.
 IT 108-44-1, m-Toluidine, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (synthesis of torasemide)
 RN 108-44-1 HCAPLUS
 CN Benzenamine, 3-methyl- (9CI) (CA INDEX NAME)



IT 33263-43-3P, 4-Chloropyridine-3-sulfonamide 72811-73-5P, 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]-
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP
 (Preparation); RACT (Reactant or reagent)
 (synthesis of torasemide)
 RN 33263-43-3 HCAPLUS
 CN 3-Pyridinesulfonamide, 4-chloro- (8CI, 9CI) (CA INDEX NAME)



RN 72811-73-5 HCAPLUS
 CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI) (CA INDEX NAME)



L18 ANSWER 3 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN

Full Citations
 Text References

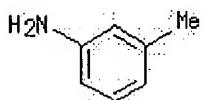
ACCESSION NUMBER: 1995:301468 HCAPLUS
 DOCUMENT NUMBER: 122:105616
 TITLE: Chemical structure and physico-chemical properties of torasemide
 AUTHOR(S): Kondo, Nobuo; Kimura, Masazo; Yamamoto, Madoka; Hashimoto, Hirotaka; Kawamata, Ken-ichiro; Kawano, Kōnsuke; Schmidt, Heinrich
 CORPORATE SOURCE: New Product Res. Laboratories, Green Cross Corp., Hirakata, 573, Japan
 SOURCE: Iyakuhin Kenkyu (1994), 25(9), 734-50
 CODEN: IYKEDH; ISSN: 0287-0894
 PUBLISHER: Nippon Koteisho Kyokai
 DOCUMENT TYPE: Journal
 LANGUAGE: Japanese

AB The chem. structure of torasemide, a diuretic agent, was confirmed on the basis of elemental anal., UV, IR, NMR and mass spectra. The physico-chem. properties were clarified by studying the appearance, solv., hygroscopicity, photo-stability, m.p., thermal anal., pH of aq. soln., dissoch. const., partition coeff., polymorphism, specific optical rotation and impurities. Investigations into the stability of torasemide under severe conditions were also conducted to define the degradative pathway for the compd.

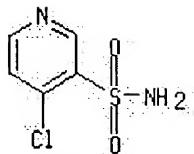
IT 108-44-1, reactions 33263-43-3, 4-Chloropyridine-3-sulfonamide

RL: RCT (Reactant); RACT (Reactant or reagent)
 (synthesis and physico-chem. properties of torasemide)

RN 108-44-1 HCAPLUS
 CN Benzenamine, 3-methyl- (9CI) (CA INDEX NAME)



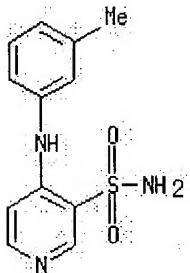
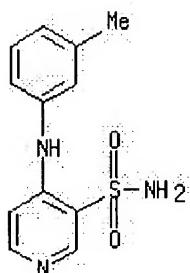
RN 33263-43-3 HCAPLUS
 CN 3-Pyridinesulfonamide, 4-chloro- (8CI, 9CI) (CA INDEX NAME)

IT 72811-73-5P 160822-47-9P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation); RACT (Reactant or reagent)
 (synthesis and physico-chem. properties of torasemide)

RN 72811-73-5 HCPLUS

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI) (CA INDEX NAME)

RN 160822-47-9 HCPLUSCN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]-, monohydrochloride (9CI)
 (CA INDEX NAME)

HCl

L18 ANSWER 4 OF 5 HCPLUS COPYRIGHT 2004 ACS on STN

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ACCESSION NUMBER: 1988:160942 HCPLUS

DOCUMENT NUMBER: 108:160942

TITLE: Chemistry and pharmacological properties of the
pyridine-3-sulfonylurea derivative torasemide

AUTHOR(S): Delarge, J.

CORPORATE SOURCE: Inst. Pharm., State Univ. Liege, Liege, B-4000, Belg.

SOURCE: Arzneimittel-Forschung (1988), 38(1A), 144-50

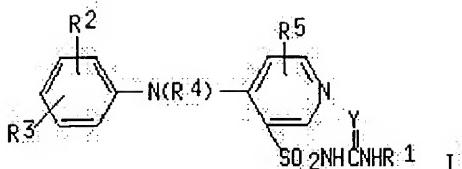
CODEN: ARZNAD; ISSN: 0004-4172

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 108:160942

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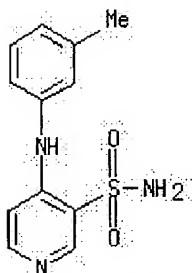
AB Out of a series of pyridine-3-sulfonylureas (I; R₁ = Me, Et, Pr, etc.; R₂ = 3-CF₃, 3-NO₂, 3-MeO, 3-Me, 3-Et, 2-, 3-, 4-Cl, etc.; R₃ = H or 4-, 5-Cl; R₄ = R₅ = H or Me; Y = O or S) with diuretic activity torasemide (I; R₁ = i-Pr, R₂ = 3-Me, R₃ = R₄ = R₅ = H, Y = O), which was prep'd., proved to be one of the most active derivs. In the rat, urinary vol. and electrolyte excretions increased linearly with the logarithm of the dose, thus resembling the profile of a high ceiling diuretic. Torasemide was equally potent both by oral and parenteral administration. Compared to furosemide, torasemide was 9-40 times more potent on wt. basis in the rat. For the same natriuretic effect, however, K⁺ losses with torasemide were less than with furosemide. The diuretic effect of torasemide lasted longer than that of furosemide. The plasma elimination half-life of torasemide was ~1.5 h in the rat and bioavailability was nearly complete. Torasemide was 98-99% bound to plasma proteins. No in vitro interaction was found with the coumarin deriv. warfarin.

IT 72811-73-5P, 3-Sulfonamido-4-(3-methylanilino)pyridine

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reaction with isopropylcyanate)

RN 72811-73-5 HCPLUS

CN 3-Pyridinesulfonamide, 4-[(3-methylphenyl)amino]- (9CI) (CA INDEX NAME)

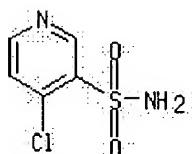


IT 33263-43-3P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reaction with toluidine or isopropylcyanate)

RN 33263-43-3 HCPLUS

CN 3-Pyridinesulfonamide, 4-chloro- (8CI, 9CI) (CA INDEX NAME)

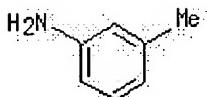


IT 108-44-1, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with chloropyridinesulfonamide or isopropylchloropyridylsulfonylurea)

RN 108-44-1 HCPLUS

CN Benzenamine, 3-methyl- (9CI) (CA INDEX NAME)



L18 ANSWER 5 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN

 Full Text References

ACCESSION NUMBER: 1976:59218 HCAPLUS
 DOCUMENT NUMBER: 84:59218
 TITLE: Pyridine derivatives
 INVENTOR(S): Delarge, Jacques E.; Lapierre, Charles L.; Georges, Andre H.
 PATENT ASSIGNEE(S): Christiaens, A., S. A., Belg.
 SOURCE: Ger. Offen., 39 pp.
 CODEN: GWXXBX
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|-------------|------|----------|------------------------|----------|
| DE 2516025 | A1 | 19751106 | <u>DE 1975-2516025</u> | 19750412 |
| DE 2516025 | C2 | 19881103 | | |
| ZA 7502243 | A | 19760331 | <u>ZA 1975-2243</u> | 19750408 |
| BE 827844 | A1 | 19751013 | <u>BE 1975-155330</u> | 19750411 |
| ES 436581 | A1 | 19770401 | <u>ES 1975-436581</u> | 19750414 |
| IL 47084 | A1 | 19790131 | <u>IL 1975-47084</u> | 19750414 |
| SE 7504409 | A | 19751020 | <u>SE 1975-4409</u> | 19750416 |
| SE 424320 | B | 19820712 | | |
| SE 424320 | C | 19821021 | | |
| NL 7504521 | A | 19751021 | <u>NL 1975-4521</u> | 19750416 |
| NL 183580 | B | 19880701 | | |
| NL 183580 | C | 19881201 | | |
| FR 2267775 | A1 | 19751114 | <u>FR 1975-11791</u> | 19750416 |
| FR 2267775 | B1 | 19781110 | | |
| US 4018929 | A | 19770419 | <u>US 1975-568759</u> | 19750416 |
| AT 7502882 | A | 19771115 | <u>AT 1975-2882</u> | 19750416 |
| AT 345832 | B | 19781010 | <u>AT 1977-1898</u> | 19750416 |
| CH 609045 | A | 19790215 | <u>CH 1975-4857</u> | 19750416 |
| CH 610890 | A | 19790515 | <u>CH 1978-2163</u> | 19750416 |
| CH 612424 | A | 19790731 | <u>CH 1978-2164</u> | 19750416 |
| CA 1070313 | A1 | 19800122 | <u>CA 1975-224805</u> | 19750416 |
| JP 50142571 | A2 | 19751117 | <u>JP 1975-47371</u> | 19750417 |
| JP 59051536 | B4 | 19841214 | | |
| DD 121936 | C | 19760905 | <u>DD 1975-185508</u> | 19750417 |
| DD 126887 | C | 19770817 | <u>DD 1975-194800</u> | 19750417 |
| US 4042693 | A | 19770816 | <u>US 1976-694422</u> | 19760609 |
| US 4055650 | A | 19771025 | <u>US 1976-694421</u> | 19760609 |
| ES 453328 | A1 | 19771101 | <u>ES 1976-453328</u> | 19761115 |
| ES 453327 | A1 | 19771116 | <u>ES 1976-453327</u> | 19761115 |
| ES 453329 | A1 | 19771116 | <u>ES 1976-453329</u> | 19761115 |
| AT 7701899 | A | 19771115 | <u>AT 1977-1899</u> | 19770318 |
| AT 7701897 | A | 19771115 | <u>AT 1977-1897</u> | 19770318 |
| SE 7907618 | A | 19790913 | <u>SE 1979-7618</u> | 19790913 |
| US 30633 | E | 19810602 | <u>US 1980-119601</u> | 19800207 |

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PRIORITY APPLN. INFO.:

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| <u>GB 1974-16836</u> | 19740417 |
| <u>GB 1975-16836</u> | 19750414 |
| <u>AT 1975-2882</u> | 19750416 |
| <u>US 1975-568759</u> | 19750416 |
| <u>US 1979-31101</u> | 19790418 |

GI For diagram(s), see printed CA Issue.

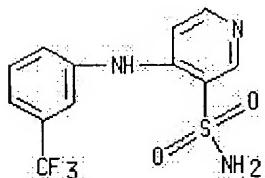
AB Pyridinesulfonamides I [R = C₆H₄R₃ (R₃ = Cl, F₃C, Me, MeO, H, Br, F, NO₂, Et, NH₂), Et, iso-Pr, 4-methylfuryl, C₆H₃C₁₂, C₆H₃(CF₃)Cl; R₁ = alkylcarbamoyl, cyclohexylcarbamoyl, CSNHCH₂CH₂:CH₂, CONHPh, CONHC₆H₄Cl-p, alkylthiocarbamoyl, H, COEt; R₂ = H, Me; X = NH, NMe, O, S, NET; n = 0, 1], useful as inflammation inhibitors and diuretics, were prepd. by various methods, e.g., treatment of I (R₁ = H) with an isocyanate or isothiocyanate. Reaction of I (R₁ = H) with an alkyl haloformate, then with an amine, gave I (R₁ = substituted carbamoyl). II reacted with amines R₅NHR to give I (X = NH, NMe, NET). II was treated with NaXR (R = substituted phenyl, X = O, S) to give the corresponding I. To prep. I (R₁ = acyl) or pyridothiadiazole III, I (R₁ = H) was reacted with EtCOCl, (EtCO)₂O, or BzCl. Treatment of I (R = alkylthiocarbamoyl) with aq. alc. Na₂CO₃ and HgO gave I (R₁ = alkylcarbamoyl). Oxidn. of I (n = 0) gave I (n = 1). I caused 1.6-92.0% inhibition of carrageenan-induced edema in rats [best results by I (R = 3,4-C₁₂C₆H₃, R₁ = CONHCHMe₂, X = NH, R₂ = H, n = 0] and caused 3.6-106.4 mg/kg increase in urine of rats [best results by I (R = 3-F₃CC₆H₄, R₁ = CONHET, X = NH, R₂ = H, n = 1)].

IT 38030-43-2P

RL: RCT (Reactant); SPN (Synthetic preparation); **PREP**
(Preparation); RACT (Reactant or reagent)
 (prepn. and reactions of)

RN 38030-43-2 HCPLUS

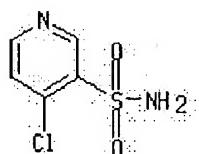
CN 3-Pyridinesulfonamide, 4-[[3-(trifluoromethyl)phenyl]amino]- (9CI) (CA INDEX NAME)

IT 33263-43-3

RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction of, with chlorophenol)

RN 33263-43-3 HCPLUS

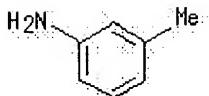
CN 3-Pyridinesulfonamide, 4-chloro- (8CI, 9CI) (CA INDEX NAME)

IT 108-44-1

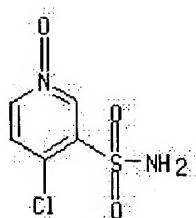
RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction of, with chloropyridinesulfonamide oxide)

RN 108-44-1 HCPLUS

CN Benzenamine, 3-methyl- (9CI) (CA INDEX NAME)

IT 58155-57-0

RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with toluidine)
RN 58155-57-0 HCAPLUS
CN 3-Pyridinesulfonamide, 4-chloro-, 1-oxide (9CI) (CA INDEX NAME)



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FILE 'CASREACT' ENTERED AT 09:43:04 ON 07 SEP 2004

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L4 STRUCTURE UPLOADED

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L7 8 S L5 FULL

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L8 12 S L7/PREP

FILE 'REGISTRY' ENTERED AT 09:46:37 ON 07 SEP 2004

L9 STRUCTURE UPLOADED
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L11 22 S L9 FULL

FILE 'HCAPLUS' ENTERED AT 09:48:42 ON 07 SEP 2004

L12 27 S L11/RCT
L13 9 S L12 AND L8

FILE 'REGISTRY' ENTERED AT 09:48:56 ON 07 SEP 2004

L14 STRUCTURE UPLOADED
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E M-TOLUIDINE/CN
L16 1 S E3

FILE 'HCAPLUS' ENTERED AT 09:50:42 ON 07 SEP 2004

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L18 5 S L17 AND L13

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L19 159 CHE, D?/AU
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L20 0 L18 AND GUNTOORI, B?/AU

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| FULL ESTIMATED COST | | 28.52 | 458.16 |
| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | | SINCE FILE | TOTAL |
| CA SUBSCRIBER PRICE | | ENTRY | SESSION |
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FILE 'CASREACT' ENTERED AT 09:43:04 ON 07 SEP 2004

L1 STRUCTURE UPLOADED
L2 0 S L1
L3 0 S L1 FULL
L4 STRUCTURE UPLOADED

FILE 'REGISTRY' ENTERED AT 09:46:10 ON 07 SEP 2004

L5 STRUCTURE UPLOADED
L6 0 S L5
L7 8 S L5 FULL

FILE 'HCAPLUS' ENTERED AT 09:46:31 ON 07 SEP 2004

L8 12 S L7/PREP

FILE 'REGISTRY' ENTERED AT 09:46:37 ON 07 SEP 2004

L9 STRUCTURE UPLOADED
L10 1 S L9
L11 22 S L9 FULL

FILE 'HCAPLUS' ENTERED AT 09:48:42 ON 07 SEP 2004
L12 27 S L11/RCT
L13 9 S L12 AND L8

FILE 'REGISTRY' ENTERED AT 09:48:56 ON 07 SEP 2004
L14 STRUCTURE UPLOADED
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L18 5 S L17 AND L13
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L20 0 S L18 AND GUNTOORI, B?/AU
L21 0 S L18 AND DUNCAN, S?/AU

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=> s 17 and l11
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